## **Ballistic Missile Defense Overview**



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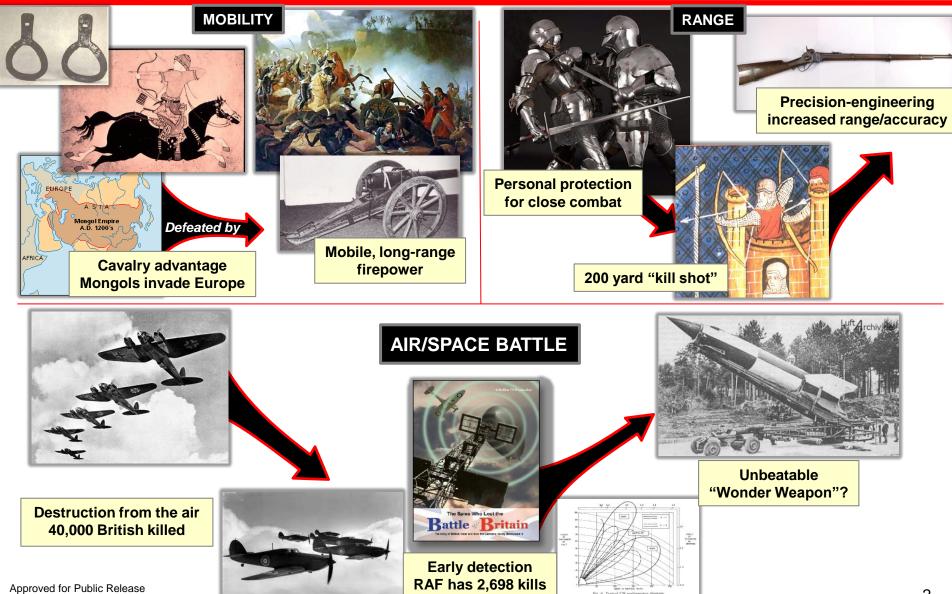
#### To: 10<sup>th</sup> Annual Missile Defense Conference

By: LTG Patrick J. O'Reilly, USA
Director
Missile Defense Agency
March 26, 2012



## Military Technology Breakthroughs

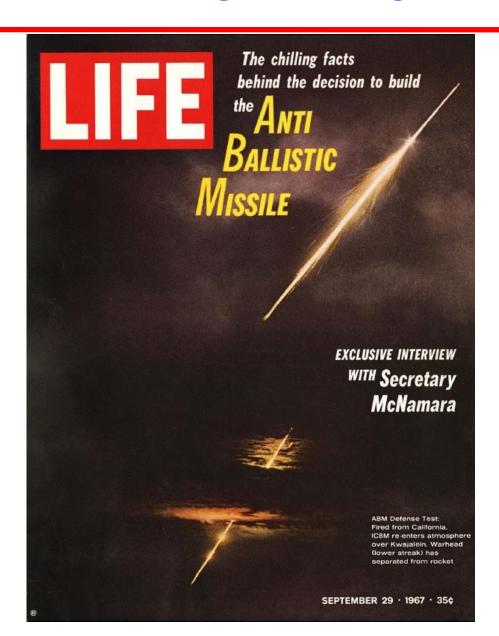
**Overwhelming Capabilities Without An Effective Counter** 



Approved for Public Release 12- MDA-6631 (21 March 12)



## Can We Hit A Target Moving 15,000 m.p.h?





### **Ballistic Missile Proliferation**

#### **Threat**

- Growing
- Unpredictable
- Anti-ship ballistic missiles threaten flow of commerce
- Threatens regional stability



Iranian Salvo Launch, 28 June 2011
Approved for Public Release
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# 2010 Ballistic Missile Force Levels Not Including U.S., China, Russia or NATO

<u>Missile Range</u>	<b>Quantity</b>
300-1,000 km	5,000-5,500
2,000-3,000 km	500-700
3,000-5,500 km	<40
> 5,500 km	0-10
Totals	5,550-6,250

Sources: NASIC, Ballistic and Cruise Missile Threat, 2009; DIA, Iran's Military Power, Statement before the Senate Armed Services Committee, 14 APR 10; DIA, Annual Threat Assessment 2008; MSIC, e-mail, RE: Unclassified Force Level Numbers, 7 February 2011; DNI, Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, Covering 1 JAN to 31 DEC 29, FARS News Agency. Open Source Center (OSC), Iranian TV shows footage of "under ground launch silos" IAP20110627950192, 27 June 2011



North Korean Taepo Dong-2, April 2009

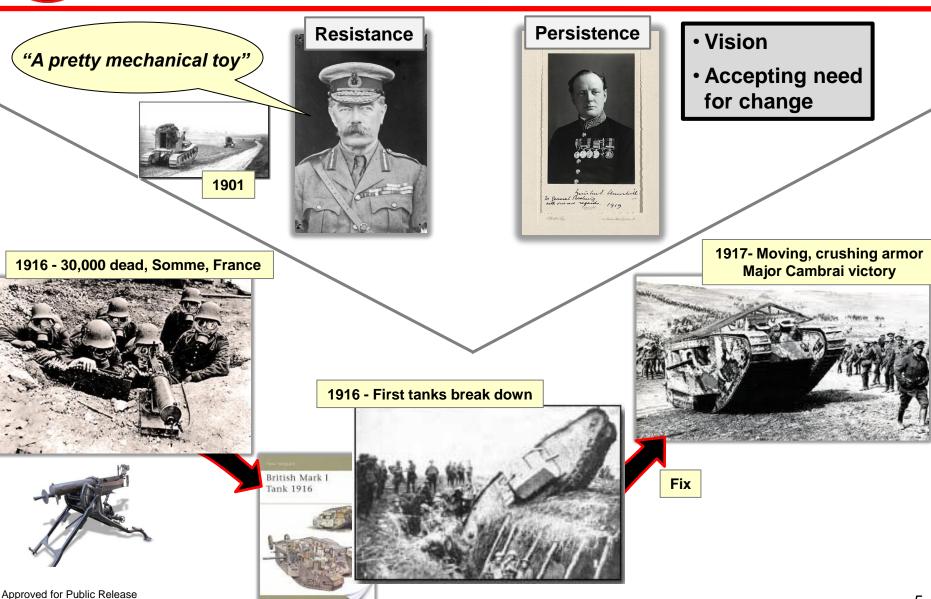


Iranian SRBM, 20 August 2010



12- MDA-6631 (21 March 12)

## **Resistance to Revolutionary Technology**





## **Homeland Defense**

Last Year's Accomplishments -





## **Regional Defense**

- Last Year's Accomplishments -

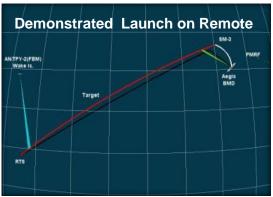




## **Ballistic Missile Defense Testing**

Last Year's Accomplishments -

## **✓** FTM-15 April 2011



- Intercept of an IRBM with Aegis 3.6.1 and an SM-3 Block IA
- Forward-based AN/TPY-2 radar in fire control loop



SM-3 IA Intercept

## **✓** FTX-17 July 2011



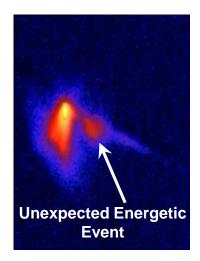
- Short Range Air Launched Target
- Tracked by multiple sensors including AN/TPY-2, Beale UEWR, STSS, ABIR and NFIRE



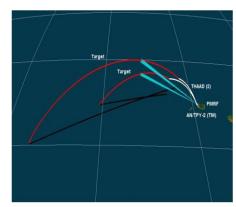
## X FTM-16 Event 2 September 2011



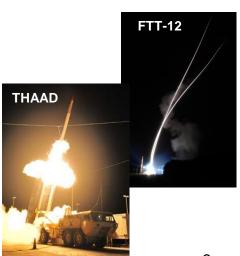
SM-3 IB and Aegis
 BMD 4.0.1 flight test



#### FTT-12 October 2011



 Simultaneous engagement of SRBM and MRBM class targets





## **International Cooperation**

Last Year's Accomplishments -

## U.S.-Poland BMD Agreement



September 2011

## UAE THAAD Foreign Military Sales Case



December 2011

## U.S.-Turkey BMD Agreement



September 2011

## U.S.-Romania BMD Agreement



December 2011

## Spain agrees to host U.S. Aegis BMD Ships



October 2011

## Joint U.S.- Israel Arrow Weapon System Flight Tests



Arrow 3 – 2<sup>nd</sup> QTR FY12 Arrow Block 4 – 2<sup>nd</sup> QTR FY12



#### This Year's Focus

## - Reliability And Testing -

#### **Ground-based Midcourse Defense**

# Reliability GM CTV-01 FTG-06b

**Testing** 

#### **Aegis Ballistic Missile Defense**







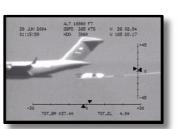


SM-3 II



## Flight Test Integrated (FTI-01)

BMD Target 1 E-LRALT MRBM



Demonstrate regional BMDS ability to defend against a raid of up to five simultaneous threats in an operationally relevant CENTCOM scenario

**OPIR Participation STSS Stereo Collect** 



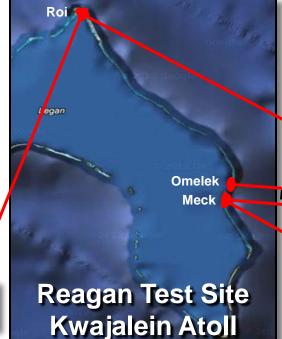
Hickam
UTCO / ADAFCO
(Upper/Lower Tier Coord)



BMD Target 2: ARAV-B SRBM



BMD Target 3: FMA Sea Launch SRBM



AEGIS 3.6.1 Engages SRBM (ARAV-B) and Air Breather (BQM-74)



AN/TPY-2 Forward Based Mode (Cueing Sensor)

Launchers Radar and associated Equipment



THAAD: Engage MRBM (E-LRALT) or SRBM (FMA)



Patriot: Engage SRBM (FMA) and/or Air Breather (MQM-107)



Target 4:BQM-74
Air Launch



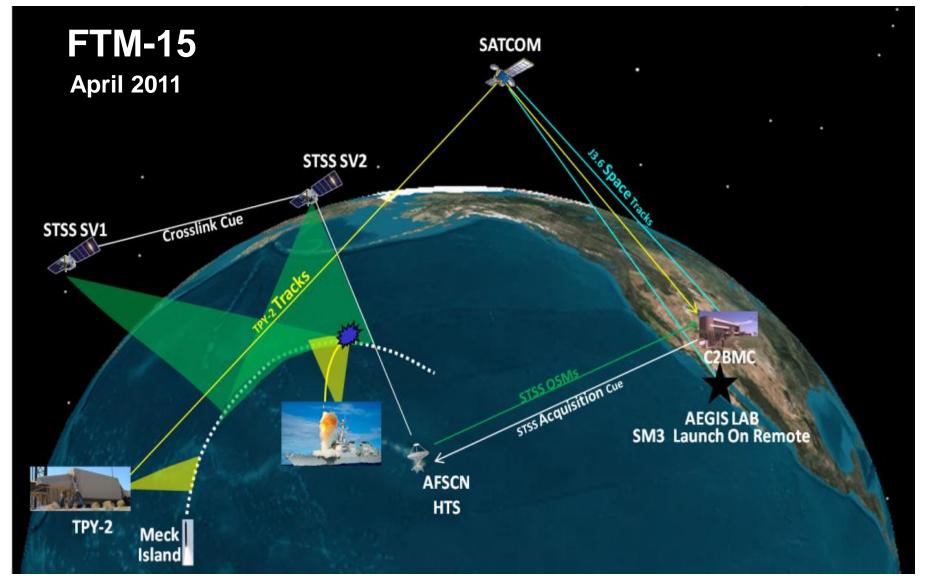
Target 5: MQM-107
Launch from Roi

FTI-01 Largest Integrated Live Fire Missile Defense Test in History



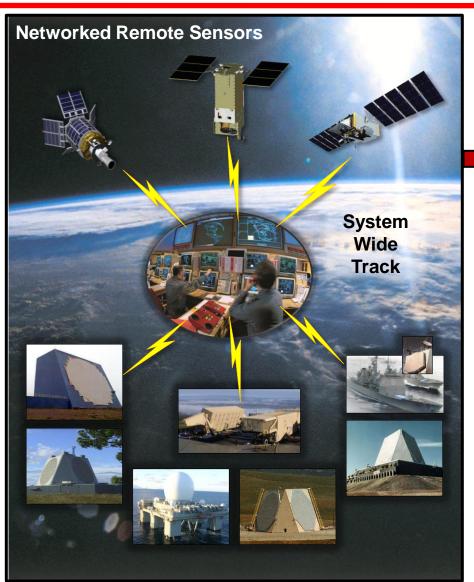
## Flight Test Maritime (FTM-15)

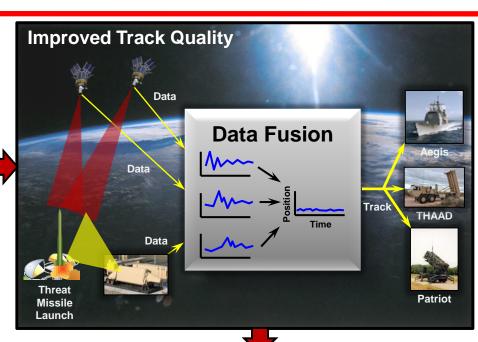
- Enabled By Remote Sensing -

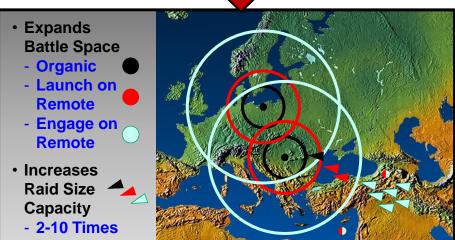




## **Networked Remote Sensing**









## **Future Developments**

– PTSS And SM-3 Block IIB –

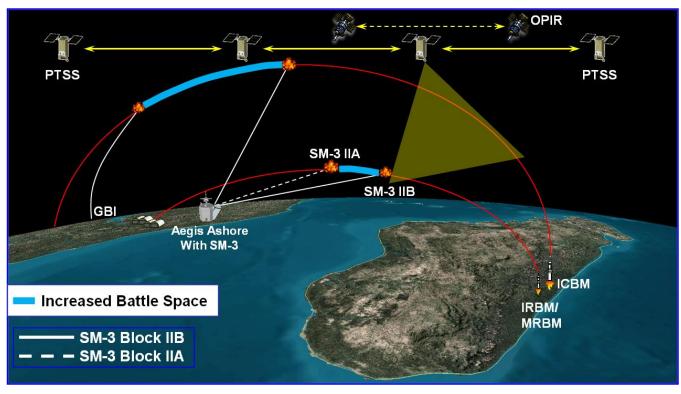
#### **Precision Tracking Space System**

- Persistent, precision missile tracking
- Any networked shooter for Homeland and Regional defense
- Pre-positioning, indications & warning, and host nation agreements not needed

#### **Standard Missile-3 Block IIB**

- Engages ICBMs early in flight as first tier of layered defense Homeland defense
- Expands battle space against MRBMs and IRBMs
- Cost-effective shot firing doctrine









## **Integrated Nature Of Ballistic Missile Defense**



